

ABSTRAK

Pesawat sinar-X merupakan alat penting di dunia radiologi, namun pembelajarannya terbatas karena risiko radiasi dan keterbatasan alat. Untuk itu, penelitian ini membuat simulasi panel kontrol sinar-X berbasis *web* menggunakan *Streamlit*, Flask API, dan p5.js. Simulasi ini bertujuan membantu mahasiswa memahami cara kerja alat sinar-X Secara visual dan real-time tanpa risiko radiasi. Sistem dirancang agar dapat mengatur parameter utama seperti tegangan (kV), arus (mA), dan waktu penyinaran melalui antarmuka *web*.

Dari hasil kuesioner, sebagian besar responden menyatakan bahwa tampilan mudah dipahami dan tombol navigasi sangat mudah digunakan. Simulasi ini juga dinilai cocok sebagai pengganti awal sebelum praktik langsung. Mayoritas responden merasa terbantu dengan tampilan visualnya, paham cara kerja sistem, serta menyatakan bahwa simulasi ini layak direkomendasikan ke mahasiswa lain. Simulasi juga dinilai mudah diakses dan berjalan lancar di perangkat pengguna. Secara keseluruhan, sistem ini diterima dengan baik dan efektif sebagai media pembelajaran elektromedik.

Kata kunci :*Simulasi, Sinar-X, Panel Kontrol, Web Interaktif, Streamlit, Flask API, p5.js*

ABSTRACT

X-ray plane is an important tool in the world of radiology, but its learning is limited due to radiation risks and limitations of the tool. For this reason, this study created a web-based simulation of the X-ray control panel using Streamlit, Flask API, and p5.js. This simulation aims to help students understand how X-ray equipment works visually and real-time without the risk of radiation. The system is designed to be able to set the main parameters such as voltage (kV), current (mA), and irradiation time through the web interface.

From the questionnaire results, most respondents stated that the display was easy to understand and the navigation buttons were very easy to use. This simulation is also considered suitable as an initial substitute before hands-on practice. The majority of respondents felt helped by the visual display, understood how the system worked, and stated that this simulation was worth recommending to other students. The simulation was also considered easy to access and runs smoothly on the user's device. Overall, the system was well received and effective as an electromedical learning media.

Keywords: *X-ray, Web Simulation, Control Panel, Interactive Web, Streamlit, Flask API, p5.js*